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# The AMERICAN JOURNAL of MEDICAL TECHNOLOGY

VOLUME 9

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NUMBER 4

## STANDARDIZATION OF THE SLIDE TESTS FOR SYPHILIS\*

By MRS. HAZEL SUESSENGUTH, M.T., A.B.

Laboratory Department, Mount Sinai Hospital, Cleveland, Ohio

### *Introduction*

Technologists are fully aware that although it may seem a comparatively simple matter to determine the optimal conditions for a flocculation test for syphilis requiring as it does antigen emulsion and patients serum only, the fact is that sufficient variables are at play in the preparation and the use of the antigen emulsion to make its standardization a difficult matter.

### *Slide Test Antigen*

Since no test is better than its indicator, it follows that in standardizing tests for syphilis the indicator, or antigen, must receive thorough study. Such studies have been constantly pursued since Wassermann first developed his test for syphilis using material extracted with saline from syphilitic fetal livers. We no longer use such an antigen nor crude alcoholic extracts. In all the standard tests of the present time, beef heart powder or extracts of it are extracted with one to several solvents to remove adventitious material which gives nonspecific results so that the resultant antigens

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\* Presented at the Annual Convention of the American Society of Medical Technologists, Philadelphia, June 9, 1942.

contain a maximum of the specific antigenic substance and a minimum of adventitious material. Studies are in progress to determine the specific chemical composition of antigen and the possibility of producing the potent factor synthetically. Until these studies are completed and the future problems of determining the optimal conditions for the use of such a substance in emulsions and tests are solved, our attention will be directed toward standardizing the performance of present day tests.

The preparation of satisfactory antigen is probably the most difficult part of the procedure in flocculation tests for syphilis. For those workers in small laboratories the commercial slide test antigen prepared by the LaMotte Chemical Products Company is advisable. Each lot is checked in the author's laboratory for sensitivity and specificity; unsatisfactory antigens are not released for distribution. All antigens, whether those of the LaMotte Company, those prepared in the author's laboratory, or those sent from other laboratories are checked by comparison with a standard antigen in tests on about 200 known negative and positive sera. The tests are performed not only at room temperature but also at 1°C.

To facilitate the performance of slide tests at low temperature an apparatus designed by the General Electric Company is employed. This consists of a refrigerated plate on which the slides are rotated using a metal holder and a water bath chilled by electrical refrigeration and thermostatically controlled at 1°C. in which the sera with pipets are placed.

When tests are run at 1°C. antigens of inferior quality give many coarsely granular negative reactions and a few to several nonspecific doubtful and positive reactions. Antigen emulsions of standard quality give negative reactions of as finely dispersed coated crystals as are seen at room temperature. Checked at room temperature an antigen of slightly inferior quality may show very few or no differences from the standard antigen in a small number of sera. Chilling sera and antigen emulsion to 1°C., however, increases the number and degree of nonspecific reactions so that it is possible to detect an inferior antigen with comparatively few sera.

In the preparation of slide test antigen, adherence to procedure and use of chemicals as specified will result in a satisfactory antigen. Absolute alcohol must be used since 95% alcoholic extracts contain

water soluble adventitious substances which precipitate in acetone with the desirable phosphatide fraction and give coarsely granular emulsions and many nonspecific reactions. In a series of 45 known negative sera tested with a 95% alcoholic extract slide test antigen at room temperature for instance, 3 were weakly positive and 42 were granular negatives.<sup>1</sup>

Absolute alcohol is used not only in the extraction of the powder but also in all subsequent steps requiring alcohol.

If slide test antigen is unsatisfactory when prepared with 95% alcohol it follows that the moisture content of the heart powder itself is of the greatest importance and should be at a minimum or the resultant antigen will be of a quality similar to the 95% alcoholic extract antigen. Difco beef heart powder as received contains 3% or less moisture. Each lot is checked before distribution by the preparation of one or more slide test antigens and only those powders yielding antigens of standard quality are approved. Heart powders kept closely covered in the refrigerator are satisfactory for use for several months. It is advisable, however, to purchase beef heart powder for immediate use only, since after opening the bottle to use a part of the powder, and leaving the remainder to be used at some future date makes it possible for the powder to absorb moisture from the air in the intervening time even though the bottle is tightly stoppered.

It has long been known that plain alcoholic extract antigens give false positive results in tests for syphilis. Most of the adventitious material in such plain alcoholic extracts can be removed by extractions with warm acetone. First the alcohol is evaporated from the extract and the resultant oily wax quickly poured into warm acetone in an evaporating dish. This is allowed to stand at 37°C. for 15 minutes and the acetone soluble fraction quickly decanted leaving the crude slide test antigen wax adherent to the inner surface of the dish. The wax is dissolved in absolute alcohol, chilled, filtered and when processed similarly a second time in the proportion of 1 gram of wax to 10 cc. of absolute alcohol it constitutes the old standard slide test antigen. Less than 15 minutes precipitation results in a wax which is satisfactory in quality but small in yield; a longer period of precipitation results in a larger yield of wax of inferior quality due to the precipitation of adventitious substances

only slightly soluble in acetone. The acetone must be warm (50°C.) or some of those substances slightly soluble in acetone will not go into solution in the short extraction period. Coleman and Bell C.P. acetone has been found to give consistently satisfactory results and is recommended.

The amount of adventitious material removed by acetone extraction is 3 to 11 times that of the antigenic acetone insoluble fraction. When a small quantity of the acetone soluble material, dissolved to 10% in absolute alcohol, is added to standard slide test antigen the resultant emulsions give coarsely granular negative reactions and many nonspecific doubtful and positive ones. In a series of 33 known negative sera run at room temperature there were 2 coarsely granular negatives, 29 doubtful and 2 positive reactions. Studies are planned to determine the constituents of the acetone soluble fraction of beef heart powder and the effects of each on the slide tests.

The need for further purifying slide test antigen became apparent a few years ago when it was learned that too many non-specific slide test results had been obtained with antigens prepared from two heart powders that presumably were, like those used before. Investigation revealed that the coarse particles in the one available unsatisfactory powder had an unusually high moisture content (7.7%). A study was made to find a way to remove the adventitious material in poor slide test antigens and thus improve their quality. The best method found was that of extraction with water and unexpectedly, it was found that this procedure likewise increased the specificity of standard slide test antigens. A complete discussion of the water purified slide test antigen is given in the American Journal of Clinical Pathology, January, 1942, with detailed method of preparation.

Briefly, the method consists of adding 2 parts old standard antigen solution to one part distilled water in an Erlenmeyer flask, rotating for 1 minute to precipitate the wax, decanting the water soluble substances, drying the wax, and dissolving it in absolute alcohol. Accurate quantities of water and antigen must be used or an emulsion will form from which it is impossible to recover the wax. Also, the proper sized surface for rotating the mixture is necessary for a maximum yield of wax.

### *Slide Test Antigen Emulsions*

An emulsion of antigen in a small quantity of water or salt solution, contains small globular antigen particles requiring strongly positive sera for visible flocculation. If cholesterol or like substance is present in the emulsion, the antigen particles are readily flocculated by even weakly positive sera.

There is evidence that cholesterol or like substance increases the sensitivity of the emulsions by changing the antigen particles from globular form and variable size to larger needle or plate-like units with flat surfaces optimal for flocculation.

In all of the other standard tests for syphilis, cholesterol or like substance is dissolved in the alcoholic solution of antigen. The emulsion, prepared by adding saline to the sensitized antigen, is composed of aggregates of phospholipid and sensitizer.

In the slide test, on the other hand, cholesterol is precipitated from an alcoholic solution by water, then the crystals are coated with antigen. Such coated crystals differ but little in size and shape regardless of temperature, speed of mixture and quantitative relationship of ingredients. The emulsions are relatively stable, give uniformly sensitive results and are flocculated by a minimal amount of reagent.

Pfanstiehl cholesterol has been recommended for use in preparing the emulsions because of its excellent quality. Within the past two years this company has been distributing a special ash free cholesterol precipitated from alcohol and labeled "For Kline Tests." These cholesterol crystals when viewed under the microscope are clean, and there is no deposit of any kind on their faces.

The surfaces of antigen particles in flocculation tests for syphilis being hydrophilic in character are sensitive to electrolytes. Consequently an excess of acid or other positive ions in the system may cause few or many of the particles to flocculate. If a few particles are flocculated the resultant emulsion is of granular character. If many particles are flocculated the emulsion breaks completely. The use of distilled water which fluctuates in pH from day to day will produce variable results in the tests. Therefore, it is advisable to use distilled water from some constant source with a pH of about 6. For the same reason, it is inadvisable to clean glassware with strong acid or alkalis or use the same glassware for chemical



work and serology unless great care is taken to remove the undesirable chemicals in the subsequent washing.

Antigen emulsions do not reach their greatest sensitivity immediately after preparation. A period of stabilization is necessary. In slide test emulsions this is done by heating in a water bath for a short period of time.

The amount of saline used for resuspending the exclusion test emulsion varies slightly with different antigens and decidedly with the speed of the centrifuge at a given rheostat setting. It is usually between .8 and 1.2 cc. for 2 cc. of emulsion and 1.5 to 2 cc. for 4 cc. It is hoped to report soon a method for the preparation of a turbidimetric standard to assist in obtaining the optimal number of particles in exclusion slide test emulsions.

#### *Performance of Slide Tests*

In the development of the slide tests and in subsequent work, optimum conditions of time, temperature, mixture of ingredients and type of apparatus were determined. Undoubtedly improvements in some or all phases of the test are possible but it is advisable to submit any variation to the author for approval before adopting it as part of the technic. Some of the improvements made by others are the ringed slide, use of a pipet or syringe and a 26 gauge needle for dropping the emulsion, the concavity slide, the various types of rotating machines, the rapid heating of sera, use of serial dilutions for determining or confirming prezone reactions and also for quantitative determinations of reagin content.

Sensitivity of serum may be increased either by the addition of electrolytes or by heating. The addition of an electrolyte is not practical for routine work because of the attention which must be given each serum individually. Although the mechanism of change in serum when heated is not known with certainty, test results show that syphilitic serum when heated possesses greater flocculating capacity than unheated serum. For many years the time and temperature for heating sera has been 55°C. to 56°C. for 15 to 30 minutes. Within the past five years however, Strauss<sup>2</sup>, Rein and Hazay<sup>3</sup>, and others have demonstrated that heating at 60-63°C. for 3 minutes has the same effect. Quick heating of sera is particularly valuable for use in blood donor work and it may eventually replace the routine 30 minute heating.



More or less antigen emulsion in serum or spinal fluid than the amount specified results in weaker reactions. This optimal proportion is determined not so much by the volume of the emulsion as by the number of particles present. For serum slide tests this proportion is one part of emulsion to seven of serum; for spinal fluid one to thirty. The particle proportion in the two tests is about the same since the emulsion is centrifuged and concentrated for the spinal fluid tests.

It is advisable to use ringed slides with an inside diameter of 14mm. Use of rings smaller than this optimal size results in a decrease in sensitivity. There are commercial ring makers available which reduce to a minimum the task of making ringed slides.

Within the past few years several machines for rotating slides have been introduced. Most of these are quite satisfactory if standardized to hand rotation. This is done by running weakly positive tests in duplicate one set by hand and one by machine. The speed or time of the machine is varied until the results with the rotator are the same as obtained by hand rotation. In the authors' laboratory it was found necessary to rotate the slides for  $6\frac{1}{2}$  minutes on one machine,  $3\frac{1}{2}$  minutes on another, and four minutes on a third machine to give the same results as obtained by 4 minute hand rotation.

In reading slide tests about the only difficulty encountered is the atypical picture of the prezone reaction. This results from a great concentration of reagin in the serum interfering with the reaction with antigen. With a little experience it is not difficult to detect this type of reaction for the mixture of serum and emulsion has a feathery appearance differing decidedly from the discrete negative particles and the clumped positive ones. Such a suspected reaction may always be confirmed by making a serial dilution of the serum and running a test on each dilution. In one or more dilutions the typical four plus reaction will be seen.

Spinal fluids turbid with exudate; blood or bacteria or containing injected substances including horse serum, are unsatisfactory for testing. Blood or animal serum may be detected either grossly or by testing with alcohol. Since it is not uncommon for a strongly positive serum to have a titer as high as 1-1500 it follows that a very small amount of serum in the 5 or 10 cc. of spinal fluid received for testing will produce a positive reaction in the spinal fluid.

Conversely, if the spinal fluid is positive and the blood negative the dilution of spinal fluid will weaken the reaction.

Bacteria in spinal fluid utilize the sugar present for growth and as a by product of the digestion, acids and other substances result. When such substances are excessive in amount clumping of the emulsion will take place.

#### *Comment*

It is possible that a simple standard flocculation test for syphilis will be developed. Serologists and chemists are making careful studies to determine the potent fraction in beef heart extract and to prepare synthetically a substance which will be specific for syphilis.

The importance of standardizing tests for syphilis was emphasized by a recent serological conference in which a committee of leading serologists, dermatologists and United States Public Health officials outlined work necessary or desirable. Their recommendations included chemical studies of antigen by a committee of chemists to be appointed. One such study is now being conducted by Dr. John W. Wellman in consultation with Dr. H. P. Lankelma at Western Reserve University under the LaMotte Fellowship with the cooperation of the United States Public Health Service.

It is hoped that the final result of all studies will be a simple, rapid and economical test for syphilis of maximum specificity and sensitivity.

#### *Conclusion*

Until the chemical composition of the potent fraction in antigen extracts for tests for syphilis is found and the best method of employing the substance in the preparation of antigen emulsions determined, it remains for us to standardize the performance of present day tests. Important details relating to standard slide test antigen, antigen emulsions and the performance of the slide tests are given above.

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## LABORATORY TRAINING SCHOOL PERSONNEL

By EVELYN N. JARDINE

*Mary Hitchcock Hospital, Hanover, New Hampshire*

It is a basic law in pedagogy that, in order to teach, the teacher must first definitely know the truth he wishes to transfer to the pupil. The approach to that truth must start from that which is already known by the pupil and advance in logical order from the known to the unknown. In order that you and I might confer on a subject about which we know so little, I looked about for a known ground, on which, as teachers, we have a common knowledge and understanding. I have chosen the basis of organization given to us by the American Medical Association; namely, the outline of organization by which the American Medical Association views a laboratory under these headings: SPACE, LIGHT, EQUIPMENT, RECORDS OF STUDENTS, LABORATORY RECORDS, FEES, LIBRARY, and FACULTY.

There may be some profit for you and I to review the good and bad features of a laboratory, all the while keeping before our eyes our own laboratory training school. I say "the good and bad features" with full knowledge that very few people believe a stranger can tell what is good or bad in another's laboratory. This brings to my mind one of the things that my pathologist has taught me, which is one of my most prized possessions, and without which I firmly believe no school can develop; namely, that a person placed in a poorly lighted, inconveniently arranged laboratory, with poor equipment and with the obligation to work rapidly, will, in a few weeks, adjust herself to the situation to such a degree, and get into such a rut, that she becomes satisfied and would resent any changes being made. Please think seriously about this. Changing technique requires a slowing of routine until many repetitions have again made the operation speedy. It would be necessary to give a new arrangement or technique at least three weeks trial to learn whether or not

it was an improvement. Do you force people to learn awkward, inconvenient ways, rather than adjust yourself to a new arrangement?

We enter our laboratories in the morning to start off immediately in a whirlwind of activity; we know where to find every article; where every move will be made. We are adjusted to every good and bad arrangement, and we lose sight of the possibilities of change. Have you taken the time in the last year to look at your laboratory as would a stranger? This can oft times result in a widespread improvement, as also may the visiting of other laboratories.

Think at this moment of your laboratory in terms of space, light, and equipment. In these days of crowded conditions, do you have one foot of space occupied by material not used constantly? Have you apparatus still in your laboratory which has been replaced by more modern equipment? Have you reagents that are not in constant use occupying space on your shelves? Do you train your students to keep the bench cleared as they work? Take some time to watch the workers. If they move from place to place to conduct a given test, or to obtain proper lighting for their work, if confusion appears, then this is a point that study on your part may be able to alter.

I would advise as little on the walls as possible, in order to get the maximum of reflection. It is very good if you can find a small space next to your laboratory where shelves may be placed to hold reagents frequently but not routinely needed. This is in excess of the main storeroom which may be some distance away. Next to our laboratory was a recess for the storing of a stretcher. Adjustable shelves were placed around it above the stretcher, and many reagents and much glassware is kept there, thus relieving the main work rooms. It is not ideal, but was the only possible available space. It may be that you can find a better arrangement.

The architect's conception of the modern kitchen is a fine example of proper handling of light and color. Light shades of cream and green, with black trim, are practical, light and cheery, and are smartly set off by the conventional black acid-proofed benches.

If your equipment is old be sure that it is clean and in order. If

it is new be sure you understand it thoroughly and that it is properly checked before it is placed in general use. Copies of the instructions received with apparatus should be filed and copies sent to the mechanical department. If you do not have mechanics to make rounds regularly, oiling and checking apparatus, you should make a point of constant checking and monthly oiling.

Let us next consider the records of students. It is one of the weakest points in the average laboratory school. Let us tabulate what is asked of us in the way of records: First, transcripts of high school and college grades, and other credentials; Second, attendance, grades, number and type of tests performed; Third, synopsis of complete curriculum, including the rotation of assignments, outline of instruction, and list of specimens, if any, used to augment the experience of the student.

At the Mary Hitchcock Memorial Hospital we have tried to keep all this data with the least possible bother, and I will outline our own method for you. It may or may not be of value to your particular circumstances.

Individual manila folders hold all the correspondence, transcripts, and references of each accepted student. It should be emphasized here that a great deal of unnecessary correspondence is avoided if the Registry has checked the credentials before final acceptance of a student. This folder is in the file under "students." After the student has completed her training, the same folder, with all its statistics, is placed in the file under "graduates."

The records on attendance, grades, number and type of tests performed presents a more difficult problem. As the chief technician or principal in a training school it is essential that you know if a student is absent, and to save time we record any absence as soon as it is granted, and at the end of the month draw a line through the days attended. It takes only a very little time.

For routine work, including the keeping of grades, I have found it convenient to have on my desk an ordinary file box containing the 6 x 4 cards. These are in alphabetical order and contain all working information.

(Front)

EXAMPLE: No. 1

NAME (as it is to appear on certificate)

Date	Subject	Written	Practical	Place	Remarks
12-16-41	Bacteriology	80		Med. School	
7-20-41	"	93		MHMH	
1-22-42	"	88		Med. School	
2-18-42	Chemistry	99	90	MHMH	Excellent
3-20-42	Hematology	94		MHMH	
4- 6-42	"	80		Med. School	
5-19-42	Parasitology	85		Med. School	
6- 7-42	Tissue	80	95	MHMH	
6-11-42	Serology	93		MHMH	
7- 9-42	Urinalysis	95	80	MHMH	
	Management		85	MHMH	

(Back)

EXAMPLE: No. 2

2 Rope Ferry Road

Tel. 187

John Doe  
44 Blanchard Place  
Concord, N. H.

Wheaton College B. A.  
4 years

Entered April 1, 1940  
Completed April 1, 1941  
Final grade 87.7

A.S.C.P.  
Registry  
Grade 83

Absent  $\frac{1}{2}$  days  
Long week-ends 4

American

Methodist

Born Oct. 23, 1919

You will notice on the back facsimile that I have the address, college attended, course taken and degree received, as well as the date of entering, completing course and average grade attained. As soon as the Registry sends word of the grade received in their examination this is also added. At the bottom of the card I place the nationality, religion, and date of birth. Under a clip I keep a slip of paper to which I transfer the absences from the attendance slip once a month, so that at the end of the training I record the number of days absent. In this one card index box, containing two alphabetical sets, I am able to learn quickly all the pertinent information of the active file of students and to refer quickly to graduates filed under the second alphabetical list.

"Number and type of tests performed" was to me the greatest snag. It is now handled more or less conveniently until I can see a better solution. Every month each student is given a lined paper on which to record the work performed, observed, and lectures attended. This paper is so ruled that there is space to write out fully the name of the procedure with a block in which to record the number for each day, with the last block for a monthly total. Each monthly record is placed in the individual folder after I have transferred the totals only to a similar sheet. In this way the sheets containing the totals of each student will show any tests not yet performed by the student as well as the number completed.



NAME

TERM

July 1942

July 1943

January

February

March

April

May

June

July

August

September

October

November

December

Total

Acetone

A. Phosphatase

Alk. Phosphatase

A-G Ratio

Amylase

Plasma Sp. Gravity

Bromsulphalein

Calcium

Chloride

Cholesterol

CO<sub>2</sub> Combining

Congo Red

Creatinine

Fouchet

Icteric Index

Methemoglobin

Non-Protein-Nitrogen

Phosphates

Prothrombin

Protein

Bromide

Lipase

Sugar

Sugar Tolerance

Sulphonamide Levels

Urea Nitrogen

Uric Acid

Van Den Bergh

(Down Rules are Omitted in This Reproduction  
Pages 127 and 128 are one unit

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Vitamin													
Special													
Parasites													
Concentration													
Culture													
Slides													
Microscopic													
Feces-Blood													
Benzidine													
Guaiaac													
Microscopic													
Chemical													
Spinal Fluid													
Cell Count													
Chloride													
Differential													
Pandy													
Gold													
Protein													
Sugar													
Serology													
Kahn													
Mazzini													
Venous Punctures													
Gastric-Chemical													
Occult Blood													
Microscopic													
Special													

(Sheet 14 x 11 Ruled on both sides)  
Pages 127 and 128 are one unit

NAME	STUDENTS DAILY RECORD														
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agglutinations															
Hetrophile															
Undulant															
Widal															
Cultures															
Blood															
Exudate															
Feces															
Fluid															
G. C.															
K. L.															
Spinal Fluid															
Urine															
Special															
Inoculations															
Guinea Pig															
Rabbit															
Mouse															
Smears-Fluid															
Eosinophiles															
G. C.															
K. L.															
Organisms															
Trichomonas															
Vincent's															
Miscellaneous															
Lectures															
Office															
Cleaning															

(Down Rules are Omitted in This Reproduction)

Pages 129 and 130 are one unit

## BACTERIOLOGY

## DEPARTMENT

[illegible]

(Sheet 14 x 11 inches and ruled on both sides)

Pages 129 and 130 are one unit

"Curriculum, rotation of assignments, outlining of instruction" has been taken care of somewhat. The card file holds a blocked card indicating the rotation of courses, curriculum and outline of instruction, which I have combined on a form that is filled in and given to each graduate to carry for interviews. This is in excess of the certificate for graduation. This form has the following information:

EXAMPLE: No. 4

MARY HITCHCOCK MEMORIAL HOSPITAL  
HANOVER - NEW HAMPSHIRE

DONALD S. SMITH  
Superintendent

To Whom It May Concern:

This letter is to certify that  
has completed satisfactorily a year's course in laboratory technique at the Mary Hitchcock Memorial Hospital, Hanover, New Hampshire, under my direction.

The courses and grades have been as follows. (The figures stand for the number of hours spent in each department).

Subject	Place	Practice Hours	Lecture Hours	Exam Hours	Total Hours	Grades
Bacteriology	Hospital,	249	60	2		
	Medical					
	School	60	36	3	410	
Chemistry	Hospital	353	30	2	385	
Hematology	Hospital	321	30	2		
	Medical					
	School		30	2	385	
Parasitology	Hospital	135	15	1		
	Medical					
	School		60	2	213	
Serology	Hospital	32	8	1	41	
Histology	Hospital	345	30	2	377	
Urinalysis	Hospital	300	10	2	312	
Management	Hospital	147			147	
		1942	309	19	2270	

Average:

Hospital 196 beds  
Admissions 5,504  
No. laboratory tests 64,764  
Admissions to Out-Patient Clinic 19,774

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Director of Laboratories

Practically all hospitals demand some form of record keeping by the laboratory. I do feel that the wise school and laboratory keeps the original order received from the floor, and on it the technician records all her figures together with any remarks that may be essential, and signs her own name to the slip, thereby assuming responsibility for its accuracy. By permanent filing of this slip a chief may quickly check the request made in the original order received in the laboratory, the manner in which the order was interpreted and executed, the mathematics involved, and the technician performing the work. The following is a sample of this order or requisition slip. The back of the sheet is blank and it is there that the figuring is done. Only the results appear on the face of the slip.

EXAMPLE: No. 5

### Laboratory Analysis

Surname _____		First Name _____		Unit No. A								
Ward _____		Room _____		Accessioned <input type="checkbox"/>								
AGE: _____		Doctor: _____		Copied <input type="checkbox"/>								
DISEASE.....		<table border="1"> <tr> <th colspan="2">REQUESTED</th> </tr> <tr> <td>Date</td> <td>Hour</td> </tr> <tr> <th colspan="2">TAKEN</th> </tr> <tr> <td>Date</td> <td>Hour</td> </tr> </table>			REQUESTED		Date	Hour	TAKEN		Date	Hour
REQUESTED												
Date	Hour											
TAKEN												
Date	Hour											
<input type="checkbox"/> Urine <input type="checkbox"/> Blood <input type="checkbox"/> Sputum <input type="checkbox"/> Fluid from ..... <input type="checkbox"/> Feces <input type="checkbox"/> Gastric Contents <input type="checkbox"/> Tissue from ..... <input type="checkbox"/> Swab..... For smear..... For Culture..... <input type="checkbox"/> .....												
EXAMINE FOR	SPECIAL	ROUTINE										

Mary Hitchcock Memorial Hospital Form 384  
(This is 5" x 4")

COMPLETED	
Date	Hour
By	

The library is much the responsibility of the pathologist in charge. Once it is established it is almost entirely up to the technicians or teachers to see that it is frequently and properly used. Send students to look up material personally, and always resort to

your textbooks, with the student accompanying you whenever you are not sure of some point or technique. Replace textbooks with new additions as they are published.

In requirements of "faculty", the American Medical Association states that the director must hold a certificate of the American Board of Pathology or have adequate training, and that he be responsible for the actual conduct of the training course. I need not go into detail about the requirements of the technicians who do the actual teaching. I only want to say that if this profession has any heroines in its ranks, the honors go to the registered teaching technician. It would be very nice if the technician in a training school entered the profession with both a love of technical work and a love of teaching. As it is, the technician enjoys doing her own work methodically and speedily. A great deal is asked when you are relegated to a stool to watch and teach a new girl who slowly and clumsily handles your precious tools. There are only a few days of satisfaction in which you watch your pupil execute efficiently the work with the meticulous precision desired, then along comes a new student and you start all over again.

In the hands of the teaching technician today lies the answer as to whether our profession will advance in the pathway blazed for it or whether it will fall short. Many are teaching who did not plan to teach. One can fully appreciate the situation in which they find themselves. Much credit is due them for their gallant acceptance of this burden of carefully guiding the inexperienced student in the fundamentals. It requires much study to be able to give examinations and correct papers, to answer the endless questions of the enthusiastic young student, and to do it well. We all hope that patience and care at this stage may be rewarded by satisfaction of both student and teacher later. We have in our group the professional women who must not only work to the top in her given field, but also guide the younger woman along an even better pathway to a successful career.

May I close with a tribute to the great service rendered our profession by the teaching technician who is carrying an added burden to her day's hard work that there may be better Medical Technologists.



## ABSTRACTS

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**THE TREATMENT OF LEAD POISONING BY SODIUM CITRATE:** S. S. Kety & T. V. Letonoff. *Am. Jr. Med. Sci.*, vol. 205, No. 3, Mar., '43, p. 406.

Fifteen cases were given treatment consisting of the administration of 4 or 5 gm. sodium citrate dissolved in 1 oz. water three or four times daily. Severe colic cases were given 50 cc. sterile 2.5% aqueous solution of sodium citrate intravenously.

Blood lead concentrations fell markedly during this therapy. Symptoms decreased immediately and persistently. Severe colic was relieved immediately in two out of four cases. No ill-effects were observed at any time.

**THE SPECIFIC GRAVITY OF WHOLE BLOOD AND SERUM:** P. A. Gray & A. H. Elliot. *Am. Jr. Med. Sci.*, vol. 205, No. 3, Mar., '43, p. 356.

The Barbour and Hamilton falling drop technique was used on 194 blood samples. Day to day variations in the same individual were extremely slight in normal individuals. An otherwise normal diabetic gave slightly greater variations which could not be correlated with blood sugar findings. Close correlation was observed between blood specific gravity and the red blood count. Variations of RBC apparently did not influence serum specific gravity.

Specific gravity determinations are most useful clinically in estimating the fluid needs of the body in post-operative periods.

**INDEPENDENCE OF SERUM CHOLESTEROL FROM EXOGENOUS CHOLESTEROL IN INFANTS AND IN CHILDREN:** W. Heymann & F. Rack. *Am. Jr. Dis. Children*, vol. 65, No. 2, Feb., '43, p. 235.

Single doses and continued treatment with cholesterol dissolved in oil or suspended in eggnog were administered to 2 infants, 8 children and 2 adults in amounts varying from 0.07 to 0.67 gm. per kilo body weight with no observed increase in cholesterol or cholest-

terol esters in the blood serum.

A group of 5 children were fed a diet devoid of cholesterol of animal origin for 10 weeks and 3 of these followed with the administration of cholesterol. No changes in serum cholesterol were observed.

The authors conclude that the administration of exogenous cholesterol of its elimination from the diet does not affect the human organism. They suggest studies using labeled cholesterol.

**PATHOLOGY OF STAPHYLOCOCCAL PNEUMONIA COMPLICATING CLINICAL INFLUENZA: O. J. Wolleman, Jr., & M. Finland. *Am. Jr. Path.*, vol. 29, No. 1, Jan., '43, p. 23.**

Eight cases of pneumonia with *S. aureus* the only or predominating organism are presented. As all occurred during an influenza epidemic, they are probably pulmonary complications of influenza. Three types are differentiated, namely, acute fulminating, acute necrotizing and chronic organized. These correspond to those reported in the influenzal pneumonias of 1918. The suggestion is made that during an influenza epidemic, *S. aureus* may cause severe pulmonary complications of an epidemic nature.

**THE PRODUCTION OF CIRRHOSIS IN THE LIVER OF THE NORMAL DOG BY PROLONGED FEEDING OF A HIGH-FAT DIET: I. L. Chaikoff, K. B. Eichorn, C. L. Connor & C. Entenman. *Am. Jr. Path.*, vol. 29, No. 1, Jan., '43, p. 9.**

Hepatic fibrosis had previously been reported in depancreatized dogs maintained with insulin. This investigation was concerned with normal dogs fed on diets excessively high in fat. The subsequent development of fibrosis and cirrhosis of the liver is reported. This is interpreted as the result of a low-grade injury, due to the increase of fat in the liver, continued over a long period of time.

**SULFANILAMIDE ACTIVITY AGAINST E. COLI UNDER ANAEROBIC CONDITIONS: C. E. Clifton & I. E. Loewinger. *Proc. Soc. Exp. Biol. & Med.*, vol. 52, No. 3, Mar., '43, p. 225.**

Using a synthetic medium with glucose as the source of energy, sulfanilamide was found to inhibit the growth of *E. coli* under anaerobic as well as aerobic conditions. Para-aminobenzoic acid counteracted this inhibition under anaerobic conditions also.

**ELECTROPHORETIC AND KJELDAHL ANALYSIS OF PROTEIN IN NEPHRITIC URINE AND THE EFFECT OF PROTEINURIA ON THE HUMAN KIDNEY: S. S. Blackman, Jr., & B. D. Davis. *Sou. Med. Jr.*, vol. 36, No. 4, Apr., '43, p. 247.**

Twenty-four hour specimens of urine were collected and the percentage of globulin determined by Kjeldahl and by the electrophoretic method of Tiselius. Total protein figures ranged from 0.45 to 3.45 g. percent.

Cases of rapidly progressing renal insufficiency gave high concentrations of gamma globulin while patients with chronic lipid nephrosis and normal renal function gave very low values. Patients with progressing nephrotic nephritis showed no demonstrable fibrinogen lending support to the theory that the hyaline material collecting in the glomeruli and tubules of these cases may originate from globulins other than fibrinogen.

**THE PATHOGENICITY OF BACTEROIDES MELANINOGENICUS AND ITS IMPORTANCE IN SURGICAL INFECTIONS: C. Weiss. *Surgery*, vol. 13, No. 5, May, '43, p. 683.**

This organism is a small, Gram negative anaerobic, nonsporulating organism which produces a black pigment. Though it has previously been isolated from wounds, its pathogenicity had not definitely been established. Now it has been found pathogenic for rabbits and mice when young cultures are used. The necrotic damage it may cause is considerably increased when the tissue has already suffered from bacterial toxin, therefore the other bacteria found in the wound may produce suitable growth conditions for this organism.

This paper also reports the demonstration of a fibrolysin produced by this organism by means of which it dissolves human fibrinogen and prevents the local fixation of micro-organisms, thus interfering with the defense mechanism of the inflammatory process.

**AN INEXPENSIVE SOLUTION FOR SKIN STERILIZATION: M. O. Boudry. *U. S. Nav. Med. Bull.*, vol. 41, No. 2, Mar., '43, p. 533.**

This solution was formulated by Novak and Hall and is in use at Wisconsin General Hospital, Madison, Wisconsin. Its germicidal activity has been tested and reported by them.

Formula: Alcohol—95 %	525 ml.
Acetone	100 ml.
Water	375 ml.
Tricresol	5 ml.
Mercuric chloride	0.7 gm.
Eosin "Y"	0.6 gm.
Acid fuchsin	0.08 gm.

Preparation: The mercuric chloride is dissolved in the alcohol and the acetone, eosin and fuchsin are added. The tricresol is added next and finally the water. The resulting solution is cloudy but becomes clear on filtering. Filter paper may retain too much of the dye. The solution may also be clarified by the addition of 30 cc. 10% hydrochloric acid.

The solution is reported as excellent for any type of skin sterilization and for the treatment of herpes simplex, infected blisters and for "ringwormlike" lesions on the feet which may be a combination of fungus and a secondary infection from insanitary conditions.

**OBSERVATIONS ON THE GROWTH OF ENTAMOEBA HISTOLYTICA IN MEDIA CONTAINING SULFATHIAZOLE:**  
W. W. Ayres. U. S. Nav. Bull., vol. 41, No. 3, May, '43, p. 714.

The culture medium was that of Craif, consisting of 1 part human serum and 7 parts Locke's solution to which had been added enough powdered sulfathiazole to make a 60 mg. % solution. Corn starch was used in place of rice starch. *E. histolytica* grew better in this medium than in the control media without sulfathiazole. Subcultures contained fewer *E. histolytica* but growth could again be stimulated by using the same medium but adding 2 loops of *E. coli*. The addition of *E. coli* without sulfathiazole did not stimulate *E. histolytica*. Excellent results were also obtained by the addition of sulfathiazole to Cleveland and Collier liver infusion agar medium.

Observation of behavior of *E. histolytica* in sulfathiazole medium on the addition of washed RBC is described. Ingestion proceeded rapidly until cytoplasm was well filled. The ectoplasm became thickened around an erythrocyte, it became elongated and was forced out rapidly through the following end of the advancing amoeba. Several RBC were sometimes extruded simultaneously.

**MINERALS AND THE TOXEMIAS OF PREGNANCY: C. T. Javert, C. Macri & K. Kuder. *Am. Jr. Med. Sci.*, vol. 205, No. 3, Mar., '43, p. 399.**

A mineral supplement containing iron, copper, zinc, manganese, nickel and cobalt was administered to 176 prenatal cases on an adequate diet with a resultant lowering of the incidence of pre-eclamptic states. The incidence of renal, hypertensive and unclassified forms of toxemia was not affected.

**MENINGOCOCCIC MENINGITIS IN THE SAN DIEGO AREA DURING 1942: C. D. Awe, R. W. Babione & J. N. De Lamater. *U. S. Nav. Bull.*, vol. 41, No. 3, May, '43, p. 625.**

Fifty cases of meningococcic meningitis in the naval hospital at San Diego were studied. The greatest incidence occurred during the period of the year when cold damp nights increased the incidence of colds. This was in accord with previous reports that the number and rate of transfer of meningococcus carrier states was increased by colds. Another peak occurred during the period of excessive heat and dust in August.

Of the early cases admitted, 15 were given meningococcus antitoxin or serum or both and sulfapyridine. The last 31 received no meningococcus antitoxin or serum. No noticeable difference in clinical progress was observed except that serum reactions were present in the first group. Few adverse drug reactions were obtained and these all cleared with discontinuance. Serum therapy is not practical for field work and is apparently not necessary.

The total drug dose varied from 9 grams to 93 grams with an average of 37.58 grams. It was essential that the initial doses be large. Four to six grams of sodium sulfapyridine were given intravenously followed by 2 grams intravenously every 4 hours. Ample fluid was also found necessary.

## BOOK REVIEW

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**THE HEMORRHAGIC DISEASES AND THE PHYSIOLOGY OF HEMOSTASIS:** By Armand J. Quick, Ph.D., M.D., Associate Professor of Pharmacology, Marquette University of Wisconsin. Published by Charles C. Thomas, Springfield, Illinois, 1942. Pp. 340. Price \$5.00.

The Beaumont Lectureship Foundation of the Wayne County (Michigan) Medical Society has sponsored an annual series of lectures on important medical subjects since 1922. Dr. Quick was the lecturer in 1941 presenting the subject covered in this monograph in an abridged form.

The author's contributions to the subject of hemorrhagic disorders and the closely allied phenomena of blood clotting have been accorded national recognition. It is fortuitous, therefore, that he was persuaded "With the encouragement of the Beaumont Lectureship Foundation Committee" to undertake the task of correlating the experimental and theoretical aspects of hemostasis and to summarize the present knowledge concerning the important hemorrhagic disease.

Neither student, practitioner nor investigator need have any misgivings about the complexity of the subject matter in this monograph under Dr. Quick's able fashioning. It is true that the hemorrhagic disorders and hemostasis constitute a multi-faceted problem but some of the surfaces have been polished and others buffed so well by the author that the theoretical and factual are unmistakable and collectively comprise a highly informative treatise.

The Table of Contents is to be recommended for its elaboration of the text of Nine Chapters, forming almost an index of the subject in itself. An Appendix of 25 pages covers laboratory procedures related to the study of bleeding phenomena, liver function tests and

assay of clotting substances. Highlighting the monograph, of course, is a most complete presentation of the hemorrhagic diathesis revolving about the discovery and clinical application of Vitamin K.

There are 28 figures and 9 tables with a well selected bibliography and complete index. In every respect this monograph is to be recommended as a source of pertinent information on an intriguing subject, well presented by both author and publisher.



## NEWS AND ANNOUNCEMENTS

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### MINUTES OF MEETING OF THE BOARD OF DIRECTORS OF THE AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS

The Board of Directors met in Executive session, June 5th, 1943, at 2:15 p. m., at The Drake Hotel, Chicago, Illinois. Those present were: Mrs. Evelyn Jardine, President, in the chair; Miss Mary Eichman, Secretary; Mr. John Conlin, Miss Rose Matthaiei, Miss Hermine Tate, and Miss Bernice Elliott. This was established as a quorum.

Mrs. Jardine called for the reading of the minutes of last year's meetings. Mr. Conlin moved that the minutes be accepted as read. Seconded by Miss Matthaiei. Motion carried.

The following reports were presented:

Report of the Executive Secretary, Mr. Conlin. It was based on a report of the auditing company (Haskins & Sells). Miss Matthaiei moved, Miss Tate seconded, that this report be accepted as read. Motion carried.

Report of the Treasurer, Miss Tate. The Treasurer's records also had been verified.

Report of the Journal by Mr. Conlin. It, too, was based on the auditor's report.

Miss Matthaiei moved that these reports be accepted as read. Miss Elliott seconded this motion. Carried.

Report of the Advisory Board by Chairman, Miss Henrietta Lyle, read by Mrs. Jardine. Mr. Conlin moved that this report be accepted and placed on file. Seconded by Miss Matthaiei. Motion carried.

Miss Matthaiei presented the following resolution: BE IT RESOLVED, THAT, for the period of one year, beginning July 1st, 1943, and ending June 30th, 1944, because of the war emergency, that all business matters pertaining to the American Society of

Medical Technologists, remain status quo except in so far as matters requiring the immediate attention of the Board of Directors may be concerned. Mr. Conlin moved that this resolution be accepted. Seconded by Miss Elliott. Carried unanimously.

It was moved by Miss Matthaëi that we have the assistant of the Executive Secretary and the Treasurer and any other persons handling moneys of the Society placed under bond. Miss Elliott seconded this motion. Carried.

Miss Tate moved that a portion of the Journal be devoted to an Honor Roll for members of the American Society of Medical Technologists serving in the Armed Forces. Mr. Conlin desired to make an addition to this motion, that the said members be retained as paid up, in full, for the duration and six months thereafter. Motion seconded by Miss Matthaëi and carried.

An opinion was expressed by Mr. Conlin that the Society's unused equipment, namely, dictaphone and shaver, and a floor safe, be put on sale at this time.

Miss Tate made a motion that these said materials be disposed of by Mr. Conlin at the best price obtainable. Seconded and passed.

Miss Matthaëi presented the following: BE IT RESOLVED, THAT, the Society's four dollar liability, created by a deposited four dollar check on the Boardwalk Atlantic City Bank, being lost through the clearing house mail, be removed from the Treasurer's books, as of this date. Seconded and passed.

Mr. Conlin proposed that Miss Cecelia Kortuem be the manager of the column, "STATES AND LOCAL SOCIETIES", to be featured in the Journal.

It was recommended that listing of the affiliated Societies of the American Society of Medical Technologists be placed in the Journal.

It was also suggested that a roster of our members be included in one or two editions of the Journal.

These were approved by the Board of Directors.

Mrs. Jardine announced that through Mr. Louis Herring of Orlando, Florida, a man, the name withheld, has offered to the American Society of Medical Technologists, the sum of two thousand dollars, in order to create a trust fund, to which any one may contribute, to be used explicitly by any A.S.M.T. member desirous of engaging in research work. The official governing body for the formulating of the rules and regulations, and the judging of the

value of a project submitted by a technologist, is to be designated by the Executive body of the American Society of Medical Technologists.

A motion was made by Miss Tate that we accept the two thousand dollars and appoint a committee, consisting of two technologists, from our members, and a pathologist.

Miss Tate withdrew this motion.

Mr. Conlin presented the following resolution: BE IT RESOLVED, THAT, the sum of two thousand dollars, from an unknown benefactor, through Mr. Louis Herring of Orlando, Florida, be accepted by the Society, and deposited in a separate fund by the Treasurer of the Society. That this fund be administered by a research committee, composed of two technologists from the American Society of Medical Technologists and a pathologist, versed in the field of research, who shall have the authority to aid individual members of the American Society of Medical Technologists, requesting assistance and deemed in order by the research committee. Chairman of said research committee shall be a pathologist who is completely familiar with the research field. Withdrawals from this fund shall be granted by the Treasurer on receipt of voucher, signed by the committee and approved by the Chairman of the Board of Directors of the American Society of Medical Technologists. Should a recipient of research fund obtain royalties through a research as was financed from fund, said recipient shall return amount as granted by the committee plus legal rate of interest. Seconded by Miss Matthaei. Passed.

It was moved by Miss Matthaei that the sum of one hundred and fifty dollars be put aside for papers submitted for publication in the Journal and that the same be awarded in a manner to be decided by a committee appointed by the President. Seconded by Miss Elliott. Motion lost.

Mr. Conlin moved that in addition to the gold, silver, and bronze medals, the sum of fifty, twenty-five, and twenty-five dollars, respectively, be granted for papers to be judged in June, 1944. Seconded and carried.

By vote of the Board of Directors in Executive session, it is thereby agreed to continue the contract which exists with Louise M. Wines, for an additional year, July 1st, 1943, through June 30th, 1944.

Miss Matthaei moved that Mrs. Jardine take over the membership campaign as she sees fit. Seconded by Miss Elliott. Motion carried.

It was moved by Miss Matthaei and seconded by Miss Elliott that the usual five hundred dollar fund be applied to the Journal. Motion passed.

The Meeting was then declared open to any technologist who wished to attend. Mrs. Jardine gave a brief resume of the business transacted at the Executive session. Also informed us of the plans and organization of an Educational Program by the Registry, the material of which will be available for presentation at State Society meetings.

Miss Loretta Laughlin, Program Chairman, announced the selections of the papers by the Awards Committee.

Meeting adjourned 7:30 p. m.

MARY EICHMAN, *Recording Secy.*

The officers and Board of Directors of the American Society of Medical Technologists wish to express a vote of appreciation to the members of the Chicago Society, who so kindly arranged a reception, given by the Central Scientific Company, Chicago, Illinois, prior to the dinner for us at the Blackhawk Restaurant. We are indeed grateful for the very delightful evening.

While in Chicago, our members had the pleasure of meeting and conversing with Mrs. Louise Wines, assistant to our Executive Secretary.

#### REPORT OF AWARDS COMMITTEE

Papers were completed before the opening of the meeting of the Officers and Directors. The committee included three pathologists and one technician. The Pathologists were Dr. Louise Norton of Rochester, New Hampshire, Dr. Nelson of Wichita Falls, Texas, and Dr. Joseph Andujar of Fort Worth, Texas.

Awards were made for the following papers: first award, "The Use of the Chick Embryo in the Clinical Laboratory"—Lois Gal-

lagher and Pauline Kurachi; second award, "The Use of the *Xenopus Laevis* as a Test Animal for Pregnancy"—Louis Herring, Orlando, Florida; third award, "Aseptic Technic for Coagulation and Bleeding Time Determination in the Nursery"—Clara Becton, Fort Worth, Texas.

Respectfully submitted,

LORETTA A. LAUGHLIN, M.T.

Chairman of Awards Committee

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The National Foundation for Infantile Paralysis and the University of Michigan have joined in a long-range program for the training of doctors, public health workers and laboratory technicians to study infantile paralysis and other virus diseases, it was announced today in a joint statement by Basil O'Connor, president of the Foundation, and Dr. Alexander G. Ruthven, president of the University.

This program, which has been developing for three years, will be expanded to its full scope about June 1 when the University opens its new three-story building for its School of Public Health at Ann Arbor, Mich.

The new structure will house a unit devoted entirely to work in virus diseases, particularly infantile paralysis. The virologists who will be trained under the program will be prepared to attack the whole realm of virus diseases, including not only infantile paralysis but also influenza, atypical pneumonias, St. Louis and equine encephalitis, measles, chicken-pox, smallpox and mumps.

To aid in the necessary planning and execution of such a project, the National Foundation now has made a three-year grant, totaling \$120,000, to the University, Mr. O'Connor announced. This is in addition to three previous grants, totaling \$110,000, made in the past three years, he added.

This makes a total of \$230,000 which the Foundation has made available to the University of Michigan School of Public Health since May 13, 1940, when the first steps in this far-seeing program were planned by Mr. O'Connor and Dr. Henry F. Vaughan, dean of the School of Public Health.

Dr. Ruthven pointed out that, even though the school has not

had adequate facilities during the two years since it opened, it has made several outstanding contributions to our knowledge of how polio is transmitted and on epidemic diseases in the army and in vital war industries. In addition, 20 men and women have received training in virology during that time.

"But it is extremely difficult to secure adequate and competent personnel without the assurance of financial support which extends beyond the period of twelve months," Dr. Ruthven said. "There are too many other opportunities offering tenure of position.

"This new three-year grant will insure the uninterrupted conduct of this program for better national health," Dr. Ruthven stated.

This is the first time in the history of the National Foundation that three long-term grants have been made within the space of a single year, Mr. O'Connor said. Last month a five-year grant, totaling \$150,000, was made to Yale University to permit it to reorganize its work on infantile paralysis and establish the Yale Poliomyelitis Study Unit. Last summer a five-year grant, totaling \$300,000, was made to The Johns Hopkins University, at Baltimore, to establish and conduct the Center for the Study of Infantile Paralysis and Related Virus Diseases.

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A project which will make The National Foundation for Infantile Paralysis the only complete central, authentic source of information on Infantile Paralysis in the world has been announced by Basil O'Connor, president of the Foundation.

A complete bibliography of all scientific literature that ever has been published pertaining to infantile paralysis is being compiled by the Foundation, and is expected to be ready for publication in book form in the early part of 1944. The first volume will contain a record of all scientific material on poliomyelitis published in the world up to the end of 1943. Subsequently, the data will be kept up to date by publication of annual supplements. Brief abstracts of the more important articles will be included in the bibliography to be published by the Foundation.

"This will be the first time there has been compiled a complete international bibliography on infantile paralysis," Mr. O'Connor said. "It will make available to the medical world data that will acquaint research workers with investigative work that already has

been done in connection with the many aspects of the disease and be of great assistance in helping them avoid repetitious investigations.

"The collection of these data will make available for medical men throughout the world complete information pertaining to infantile paralysis articles published in any language. It will make instantly available to those who request it data never before gathered in one central location."

The compilation of the information is being carried out for the Foundation with the aid of the library of the American Medical Association and the John Crerar Library, both in Chicago, under the direction of Morris Fishbein, M.D., editor of *The Journal of the American Medical Association*, and Dr. Ludwig Hektoen, Chicago, editor of the *Archives of Pathology*.

Through the work of the International Committee for the Study of Infantile Paralysis, organized by Jeremiah Milbank in 1928, much time has been saved in the compilation of the early literature in the field of infantile paralysis. The Committee, prior to its dissolution in 1932, had collected data pertaining to all literature regarding the disease that had been published up to that time. These data, now the property of the Library of the New York Academy of Medicine, have been turned over to the National Foundation for inclusion in the publication. Assisting in carrying out the work in Chicago is Miss Ella Salmonsens, medical librarian of the John Crerar Library.

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Twenty-eight grants, totaling \$354,370, have been made by The National Foundation for Infantile Paralysis to universities, hospitals, laboratories and other organizations in eleven states to continue the fight against the disease, it was announced today by Basil O'Connor, president of the Foundation.

The grants were recommended by the Foundation's Medical Advisory Committees at its semi-annual meeting and have now been approved by the Board of Trustees. The funds which make possible the Foundation's program are raised annually in January through the celebration of President Roosevelt's birthday.

Sixteen grants, totaling \$216,020, were made for virus and after-effects research. Four of these are on long-term projects being



conducted at Yale University, The Johns Hopkins University, the University of Michigan and the University of Wisconsin.

Twelve grants, totaling \$138,350, were made for various educational programs including the training of technicians in the Kenny method of treatment. Some of these grants include projects for educational work for physicians and the public. The sum of \$2,500 was appropriated for the preparation of a complete bibliography on poliomyelitis. The compilation is being done for the Foundation with the aid of the library of the American Medical Association and the John Crerar Library, both in Chicago.

The list by states follows:

#### *California*

Stanford University School of Health (Women)	\$11,820
American Physiotherapy Association, Stanford University .....	10,000
Stanford University .....	6,800
University of California Medical School, San Francisco .....	4,650
California Total .....	\$ 33,270

#### *Connecticut*

Yale University School of Medicine for the Yale Poliomyelitis Study Unit, New Haven (1st year of a 5-year grant).....	\$37,200
Connecticut Total .....	\$ 37,200

#### *Georgia*

Warm Springs Foundation, Warm Springs.....	\$43,480
Georgia Total .....	\$ 43,480

#### *Illinois*

University of Chicago.....	\$ 7,500
Northwestern University Medical School, Chicago (2 projects).....	6,700
American Medical Association, Chicago.....	2,500
Illinois Total .....	\$ 16,700

*Iowa*

State University of Iowa, Iowa City..... \$ 1,000

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Iowa Total ..... \$ 1,000

*Maryland*

The Johns Hopkins University for The Center  
for the Study of Infantile Paralysis and Re-  
lated Virus Diseases, Baltimore (2nd year of  
a 5-year grant)..... \$38,320

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Maryland Total ..... \$ 38,320

*Massachusetts*

The Children's Hospital, Boston (2 projects)..... \$11,400  
Harvard Infantile Paralysis Commission, Boston 10,000  
Massachusetts General Hospital, Boston..... 3,300

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Massachusetts Total ..... \$ 24,700

*Michigan*

University of Michigan School of Public Health,  
Ann Arbor (1st year of a 3-year grant)..... 40,000  
Michigan Department of Health, Lansing..... 19,500  
Wayne University College of Medicine, Detroit.. 5,000

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Michigan Total ..... \$ 64,950

*New York*

National Organization for Public Health Nurs-  
ing, New York City (2 projects)..... \$31,100  
National League of Nursing Education, New  
York City ..... 16,500  
University of Rochester School of Medicine and  
Dentistry, Rochester ..... 14,800  
Teachers College, Columbia University, New  
York City ..... 1,750  
New York Medical College Flower & Fifth Ave-  
nue Hospitals, New York City..... 500

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New York Total..... \$64,650

*Pennsylvania*

University of Pennsylvania, Philadelphia.....	\$10,000
D. T. Watson School of Physiotherapy, Leeds- dale .....	4,500

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Pennsylvania Total ..... \$14,500

*Wisconsin*

University of Wisconsin, Madison (3rd year of a 5-year grant).....	\$15,600
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Wisconsin Total ..... \$15,600

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GRAND TOTAL ..... \$354,370

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*Minnesota*

A "Simplified Prothrombin Test", a paper read by Dr. N. H. Lufkin and published in the *American Journal of Clinical Pathology*, Vol. XII, No. 9, Sept., 1942, was reviewed in the *Minnesota Medical Technologist* in its May, 1943, number as follows:

"The authors, N. H. Lufkin and Martha Strolberg, have adapted the method of Smith, Ziffren, Owen and Hoffman to the use of small quantities of blood, obtained without venipuncture, making the technic applicable to infants and small children. Their use of commercially prepared thromboplastin eliminates the preparation of this substance from fresh animal tissue in the laboratory. The method requires no equipment that is not already available even in very small laboratories.

"The clotting power of the blood may be reduced 40% of normal, or less, before bleeding from Vitamin K deficiency is likely to occur. Also there may be a great increase in the clotting power of the blood without danger of thrombosis. It is therefore to be expected that tests which are only roughly quantitative in method should yield results highly accurate in clinical usage.

"The probability of error in timing becomes greatly increased when the normal control clotting time is only a few seconds; on the other hand, the timing of the test may become inconveniently long if the normal control clotting time is greatly prolonged. Therefore,

in this method the proportions have been so adjusted that clotting of the normal control will usually occur to an optimal time of twenty to thirty seconds.

### *"Materials*

"The test requires watch glasses, pipets, a watch with a sweep second hand, and thromboplastin solution. If a watchglass is not at hand a porcelain evaporating dish, or even a plain glassslide may be used. Pipets may be made from small caliber soft glass tubing (inside diameter about 2 mm.). These are cut into lengths of five to eight inches and one end is drawn sharply to a point in the flame. The fine point is then broken off so that the aperture of delivery is approximately one millimeter in diameter. Blood and thromboplastin solution are drawn up into these with the use of the rubber tubing and mouth pieces of the hemocytometer pipets. If only one pipet is at hand it should be thoroughly cleansed in normal saline after each use. A stop watch is useful for timing clot formation, but not essential. An Ingersoll watch with sweep second hand has proved entirely adequate. The lancet should be not only sharp pointed but sharp edged so as to provide an incision as free as possible from tearing or bruising. For obtaining blood from the heels or toes of infants we have found the Bard-Parker blade, No. 11, most satisfactory.

"Thromboplastin solution is made as follows: The contents of one ampule (0.15 gm.) of Bacto thromboplastin are placed in a small, clean test tube. To this is added 2.5 cc. of physiological saline solution. After thorough mixing and incubating for ten minutes at 40°C. the solution is ready for use. We agree with Poncher, Rice-wasser and Kato that properly refrigerated thromboplastin solution retains activity for weeks, or even months longer than originally supposed possible. Nevertheless it is important that a normal control test be done once each day that the solution is used for a clinical test.

### *"The Test*

"From a clean pipet deliver one drop of thromboplastin solution into the center of a clean watch glass. With a lancet make a wound of sufficient depth to allow blood to flow freely. Now draw into a similar pipet a small quantity of blood and immediately deliver four drops (up to seven allowable) into the watch glass.

Note the time in seconds when the first drop reaches the thromboplastin. Immediately mix the contents of the watch glass about once every second. Time to the second when the mass becomes motionless. For a control perform the test on a normal individual using the same solution of thromboplastin. The results are expressed according to the method of Smith, Ziffren, Owen and Hoffman: (Clotting time of normal blood/Clotting time of patient's blood)  $\times 100$  = Clotting activity in percentage of normal.

*"Comment*

"The authors had performed this test over 200 times before submitting their paper for publication. They found that it accurately indicates gross prothrombin deficiencies due to lack of Vitamin K, and feel that it is reliable for use in control of Vitamin K therapy. They have frequently compared results directly with those obtained by the method of Quick, or of Smith and his collaborators. About 100 of the determinations were made on newborn infants and results compared with those of the Kato technique. The results were practically identical; the tendency to bleed and the response to Vitamin K therapy were shown equally well by both methods."

A February 11th dinner meeting was held by the Board of Directors of the Minnesota Society of Medical Technologists in Minneapolis at which 9 of the 13 members responded to roll call. At this meeting the date of the convention of the Minnesota Hospital Association and its Allied Organization was announced. The dates were May 23rd, 24th and 25th with the meeting at the Nicollet Hotel, Minneapolis, Minnesota. Sunday was specifically the Medical Technologists' Day at which time they were taken up consecutively with a business meeting, general society luncheon, and a scientific program in which Dr. R. W. Koucky presented a paper on the Rh factor and Dr. A. J. Hertzog on Anemias.

Bernice Medley, M.T. (ASCP), as chairman of the Standards and Studies Committee, presented a copy of her letter written to the Registry Bureau regarding the services being rendered by the Bureau and efforts put forth in behalf of the betterment of technologists.

A discussion arose as to the relative merits of again contacting the schools (Senior and Junior High Schools) regarding the aca-

demic status of their curriculum relative to its availability for future work in schools for medical technologists. With the sanction of the board it was voted that approximately 600 letters be sent out to the various accredited schools in the State of Minnesota to ascertain these facts.

Frieda Claussen's paper on the Rh factor which was published in a previous issue of the *Minnesota Medical Technologist*, is by request to appear in the *Minnesota Hospital Bulletin*.

Martha Strolberg represented the Minnesota Society of Medical Technologists on the general session of that society by delivering a ten minute talk relative to our profession and us, the medical technologists.

At the exhibit which was made at the Medical Technology headquarters at the Nicollet Hotel during the convention, The Abbott Company assisted in placing a display of blood banks.

Martha Strolberg addressed the students interested in Applied Sciences at the College of St. Catherine, St. Paul, on their annual "Vocation Day", March 31, 1943. The students enjoyed Mrs. Strolberg and she admits she enjoyed them—presumably meeting their many queries on medical technology.



## SERVICE ROLL

Members of the American Society of Medical Technologists in  
the service of their country\*:

Major J. A. Wood

Major Theodore Keiper

Lt. Timothy L. Duggan

Lt. Margaret M. Nichols

Lt. Margaret M. Petritz

George B. Campbell, Ph.M. 1c

Pvt. Margaret E. Little

\* We urge each member of the A. S. M. T. having knowledge of a fellow member serving in the armed forces to notify Editorial Office of his or her name and address, rank and branch of service. You will be doing your fellow member a service by submitting this information as further payment of dues by such members are cancelled for the duration and active membership maintained.

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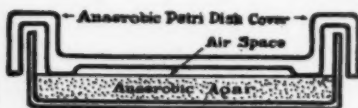


Plate showing Anaerobic Agar and Brewer Petri Dish Cover in use.

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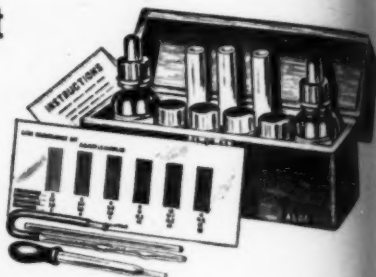
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A. Goth, "A Simple Clinical Method for Determining Sulfonamides in Blood," *Journal of Laboratory and Clinical Medicine*, Vol. 27, No. 6, March 1942.

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